

Date: Friday, 2/23/2007 1:49:21 PM
 User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : AFT TUBE ASSEMBLY
 Job Number : 30933
 Estimate Number : 10699
 P.O. Number :
 This Issue : 2/23/2007 S.O. No. :
 Prsht Rev. : NC Part Number : D3391025
 First Issue : / / Type : LANDING GEAR Drawing Number : D3391 REV E
 Previous Run : 30932 Drawing Revision : E
 Material :
 Due Date : 3/21/2007 Qty: 1 Um: Each
 Written By :
 Checked & Approved By : 01.02.26
 Comment : Est Rev B 06-02-07 ECN773 dwg rev. D EC
 Est Rev:C 06-03-28 Update Manufacturing Instructions
 JLM

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description:

1.0 D6014090 ALUMINUM EXTRUSION



Comment: Qty.: 1.0000 f(s)/Unit Total : 1.0000 f(s)

ALUMINUM EXTRUSION

Pick:

Qty Part Number Description Batch

1 D6014-090 Extrusion 32542

Identify as D3391-3

1.5 07/03/09

2.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

Turn as per Folio FA599

Rev: AA & Dwg D3391 Rev: E

1.5 07/03/09

3.0 QC2 INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

1.5 07-03-10 (1)

4.0 HAAS1 HAAS CNC VERTICAL MACHINING #1



Comment: HAAS

1-Machine as per Folio FA 599 Rev: AA & Dwg D3391 Rev: E

2-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803

3-Deburr

J.L 07/03/13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Job Number: 30933

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

J.L 07/03/13

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

QML 07/03/13

7.0

BENDING

BENDING MACHINE



Comment: NC Bender

Form as per Dwg D3391 Using Bend Prog 3391025

EL 7-3-28

8.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

9.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open Aft cap pilot hole to .208" as per Dwg D3391

2-Drill Tube as per D3391 using DT8809 (HOLES MARKED "A" ONLY)

3-Drill and c' sink wearshoe holes as per Dwg D3391 Using DT8878(Mid Tube) & DT8217 Wearplate Jig

4-C'sink holes for float bag (4 holes per side) as per Dwg D3391

5-Deburr

Tools: rill

10.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

11.0

HAND FINISHING1

HAND FINISHING RESOURCE #1

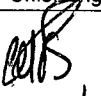


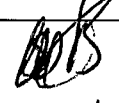
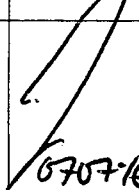


Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3391-025 PAR #: N/A Fault Category: Prod-CNC NCR: Yes No DQA: HL Date: 07-07-16
 QA: N/C Closed: HL Date: 07-07-16

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07-07-16	7.0	1 part scrap. Employee did not have the rollers all the way out when removing the part resulting in 0.020"-0.030" deep roller marks on the tube, 6" long.	 07/07/16	Scrap & destroy. Ensure to fully release the rollers when pushing out the tube.	 7-7-16	 07-07-16	 07/07/16	 07-07-16

NOTE: Date & initial all entries

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 30933

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

12.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

14.0

NAS1330C3KB166

INSERT



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

INSERT

Pick:

Qty	Part Number	Description	Batch
8	NAS1330C3KB166	Insert	

15.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Install Inserts as per dwg

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

17.0

AESS10KB366

INSERT



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

Insert

Pick:

Qty	Part Number	Description	Batch
14	AESS10KB366	Insert	

18.0

AESS10KB266

INSERT



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

INSERT

Pick:

Qty	Part Number	Description	Batch
2	AESS10KB266	Insert	

or NAS1330C3KB266

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 30933

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

19.0

AESS10KB316

INSERT



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

INSERT

Pick:

Qty	Part Number	Description	Batch
2	AESS10KB316	Insert	_____
or NAS1330C3KB316			

20.0

D2646

Aft Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Aft Cap

Pick:

Qty	Part Number	Description	Batch
1	D2646	Aft Cap	_____

21.0

AN3C4A

BOLT



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Bolt

Pick:

Qty	Part Number	Description	Batch
2	AN3C4A	Bolt	_____

22.0

AN960C10L

washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Inventory

Pick:

Qty	Part Number	Description	Batch
2	AN960C10L	Washer	_____

23.0

NAS1515H3L

WASHER



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

WASHER

Pick:

Qty	Part Number	Description	Batch
2	NAS1515H3L	Washer	_____

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Drawing Name: AFT TUBE ASSEMBLY

Job Number: 30933

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

24.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1

1-Install inserts as per Dwg D3391

2-Install Aft Cap as per Dwg D3391

A/ R Sikaflex-241/-291 _____

Sikaflex expiry date: _____

25.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

26.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

27.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion



U 87-07-17

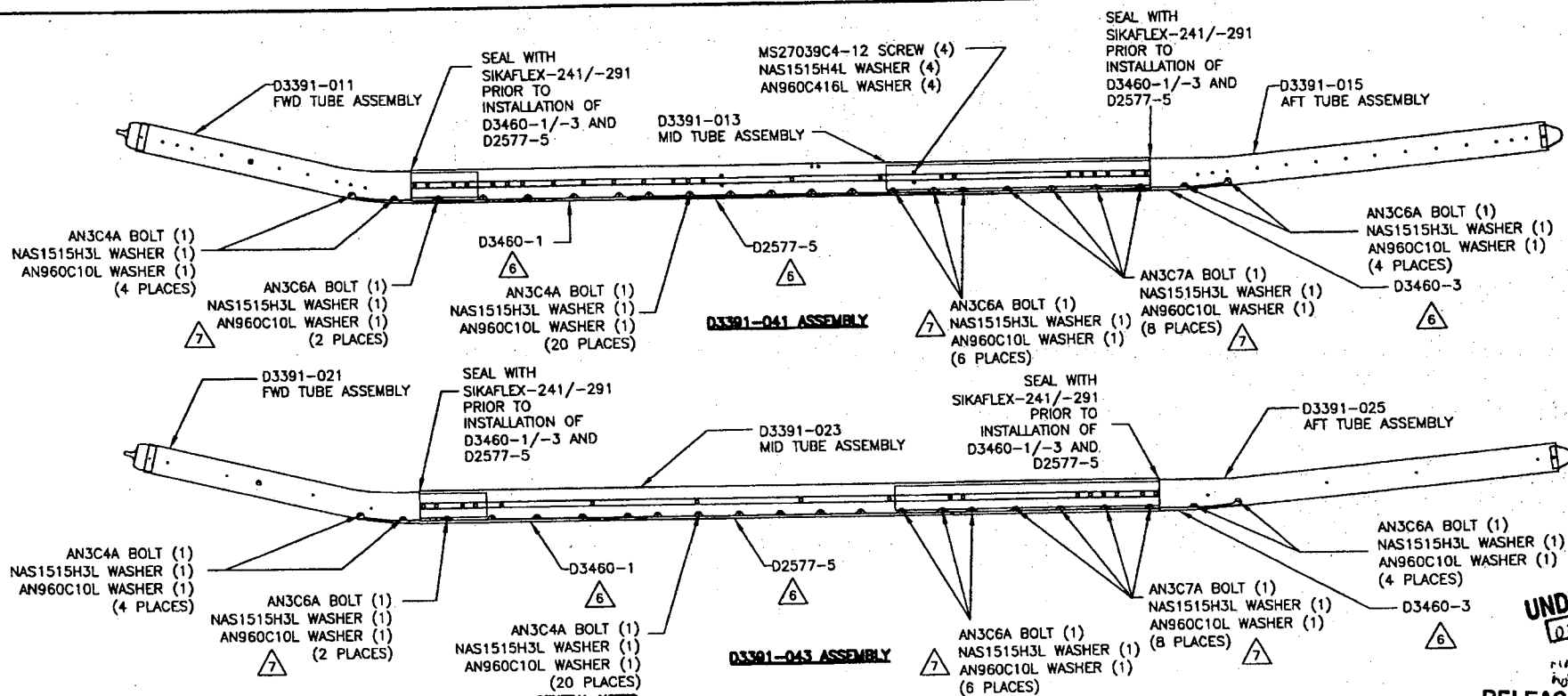
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



UNDER REVIEW
07.02.03
08.01.03
FINISHING DETAIL F
holes smaller

RELEASED

06.05.03

D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY - 041	QTY - 043	PART NUMBER	DESCRIPTION
X	X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
		D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
	1	D3391-021	FWD TUBE ASSEMBLY
	1	D3391-023	MID TUBE ASSEMBLY
	1	D3391-025	AFT TUBE ASSEMBLY
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	NAS1515H3L	WASHER
44	44	AN960C10L	WASHER
4		MS27039C4-12	SCREW
4		NAS1515H4L	WASHER
4		AN960C416L	WASHER
1	1	D2577-5	WEARSHOE
1	1	D3460-1	WEARSHOE
1	1	D3460-3	WEARSHOE

GENERAL NOTES

- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- USE DART DRILL TEMPLATE DTB217 TO LOCATE AND DRILL 'E' SIZE HOLES (#0.250-#0.257) FOR WEARSHOE INSERTS.
- C'SINK #0.391/#0.425 x 100" AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.
- APPLY A LAYER OF SIKAFLEX -241/-291 ADHESIVE BETWEEN THE BOTTOM OF THE SKIDTUBE ASSEMBLY AND THE WEARPLATES
- DO NOT TORQUE, HAND TIGHTEN ONLY

D

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E	06.04.25	CHANGE TOLERANCE, EASE MANUFACTURE
D	06.01.23	UPDATE TOLERANCE, CHANGE HOLE SIZE
C	05.09.27	LENGTHEN AFT EXTENSION
B	05.06.10	DRAWING UPDATES
A	05.02.07	NEW ISSUE
DESIGN	PH	DRAWN BY PH
CHECKED	*	APPROVED *
DATE	06.04.25	TITLE
		412 FLOAT SKIDTUBE
		SCALE
		MTS

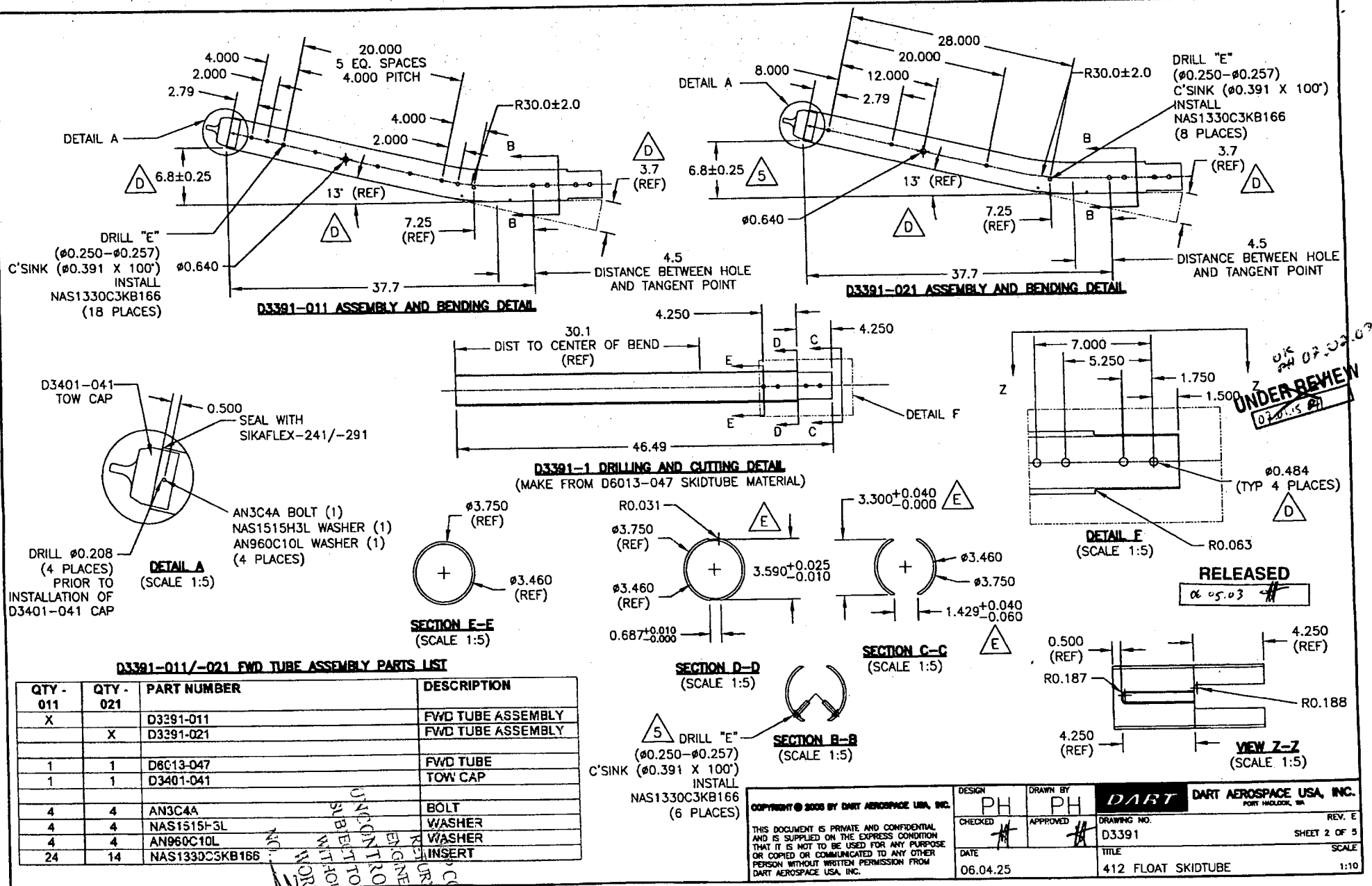
DART AEROSPACE USA, INC.
PORT HADLOCK, MA

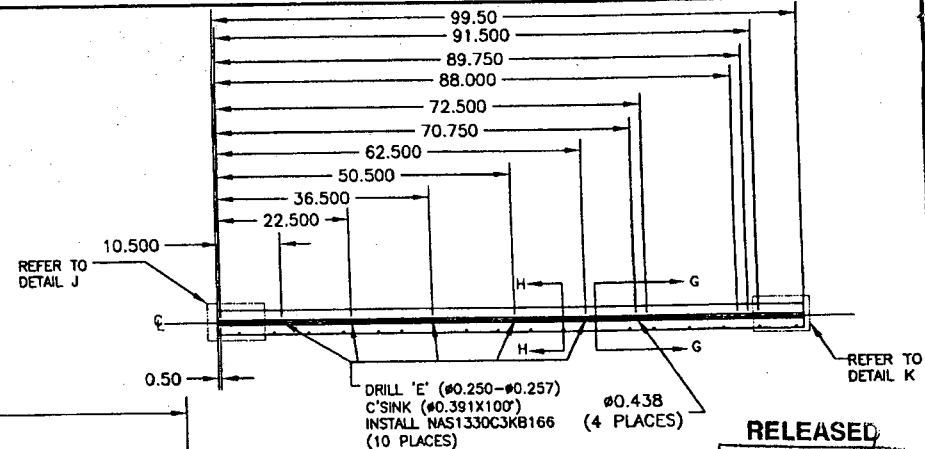
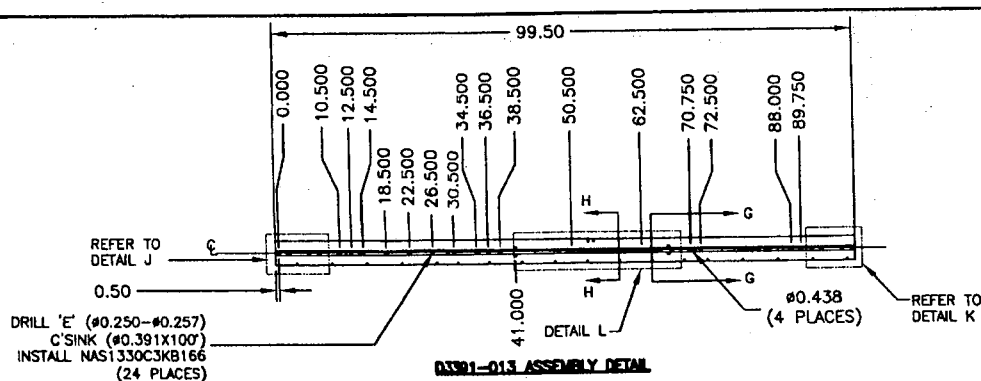
DRAWING NO. D3391

REV. E
SHEET 1 OF 5

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE

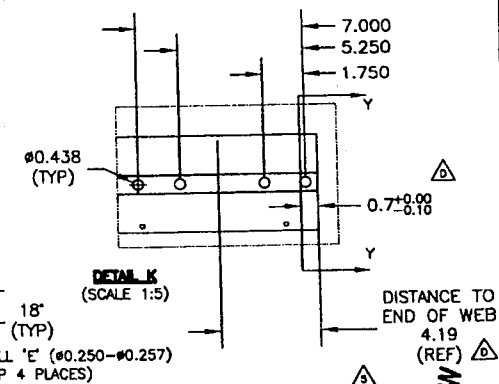
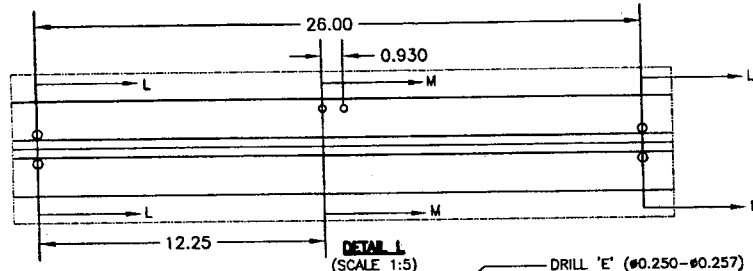
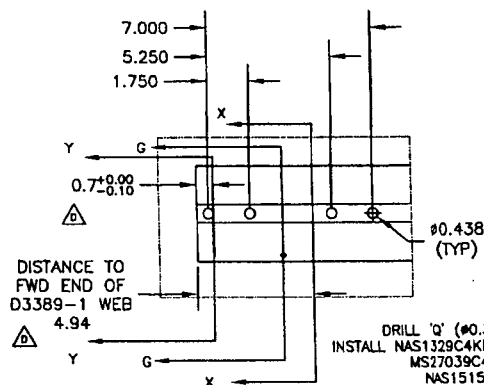
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03.03.03





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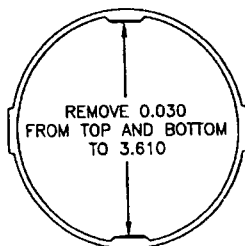
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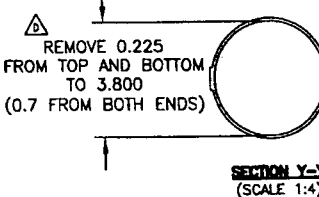
D3391-013/-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 013	QTY - 023	PART NUMBER	DESCRIPTION
X		D3391-013	MID TUBE ASSEMBLY
	X	D3391-023	MID TUBE ASSEMBLY
1	1	D2500-1-100	EXTRUSION
1	1	D3389-1	WEB
24	20	NAS1330C3KB116	INSERT
24	10	NAS1330C3KB166	INSERT
4		NAS1329C4KB140	INSERT
4		NAS1515H3L	WASHER
4		AN960C10L	WASHER
4		NAS1515H4L	WASHER
4		AN960C416L	WASHER
4		MS27039C1-09	SCREW
4		MS27039C4-08	SCREW

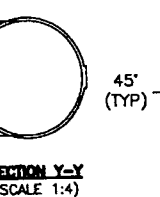
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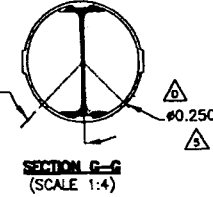
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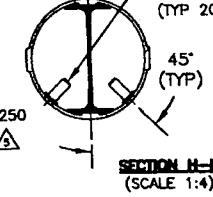
SECTION U-U (SCALE 1:4)



SECTION Y-Y (SCALE 1:4)



SECTION G-G (SCALE 1:4)



SECTION H-H (SCALE 1:4)

- D3391-013/-023 MID TUBE ASSEMBLY**
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
 - 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER OSI 015

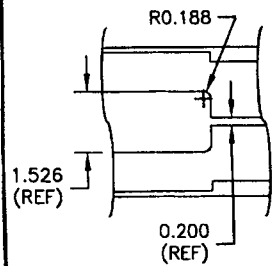
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RETURN TO
SHIP COPY
WORK ORDER
NOTICE

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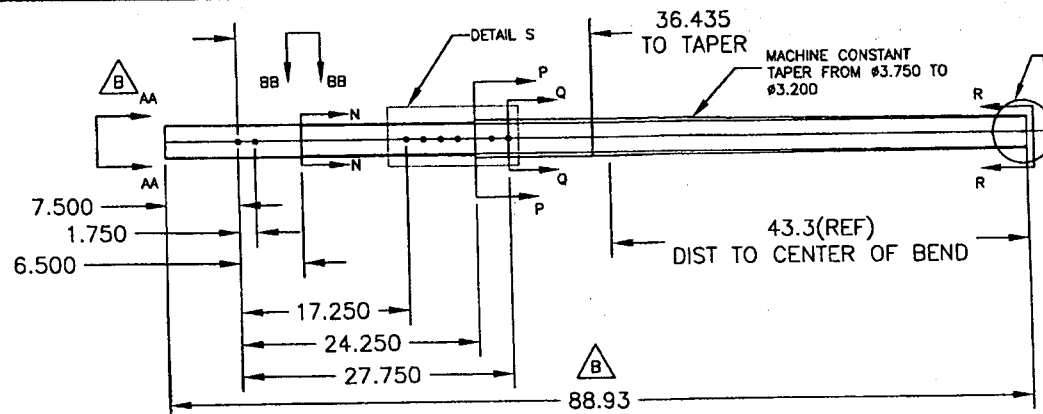
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DESIGN	DRAWN BY	DART	DART Aerospace USA, Inc.
PH	PH		
CHECKED	APPROVED	D3391	REV. E
DATE	TITLE	412 FLOAT SKIDTUBE	SHEET 3 OF 5
06.04.25			SCALE 1:20

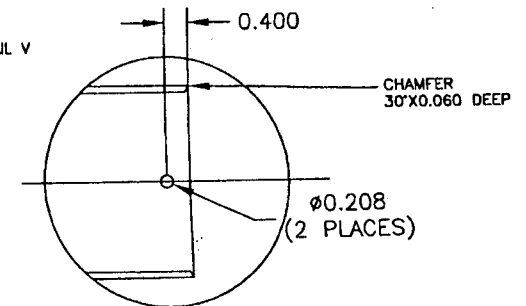
UNDER REVIEW
07.22.07



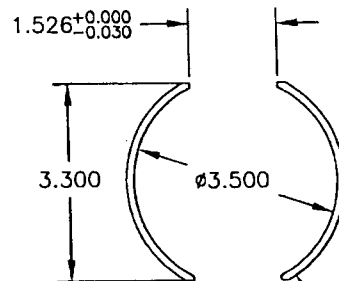
VIEW BB-BB
(SCALE 1:3)



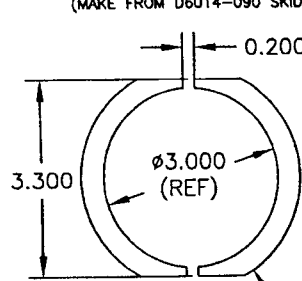
D3391-3 AFT DRILLING AND CUTTING DETAIL
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)



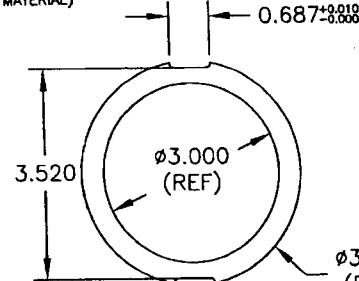
DETAIL V
(SCALE 1:2)



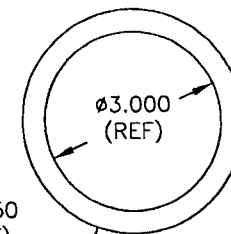
SECTION AA-AA
(SCALE 1:2)



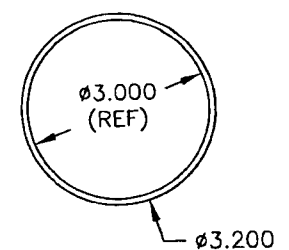
SECTION N-N
(SCALE 1:2)



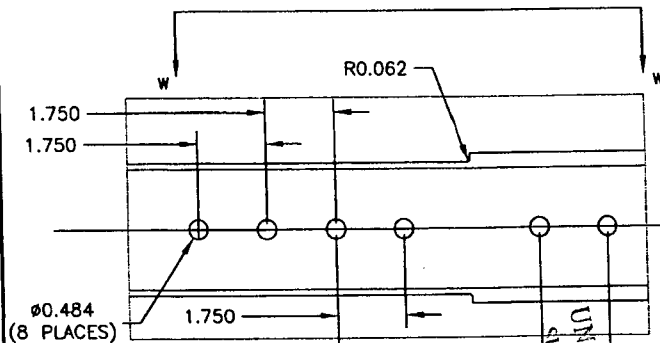
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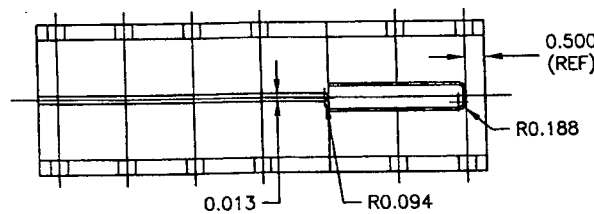
SECTION Q-Q
(SCALE 1:2)



SECTION R-R
(SCALE 1:2)



DETAIL S
(SCALE 1:3)



VIEW W-W
(SCALE 1:3)

07-01-01
UNDER REVIEW

RELEASED

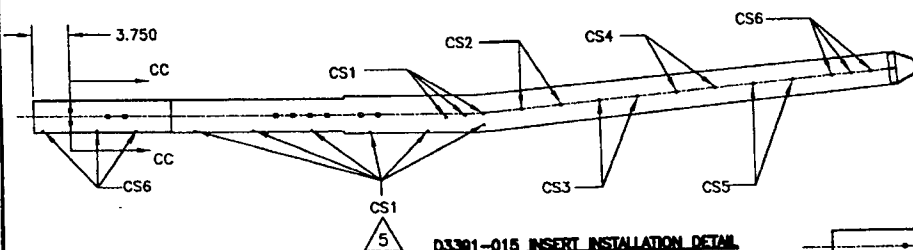
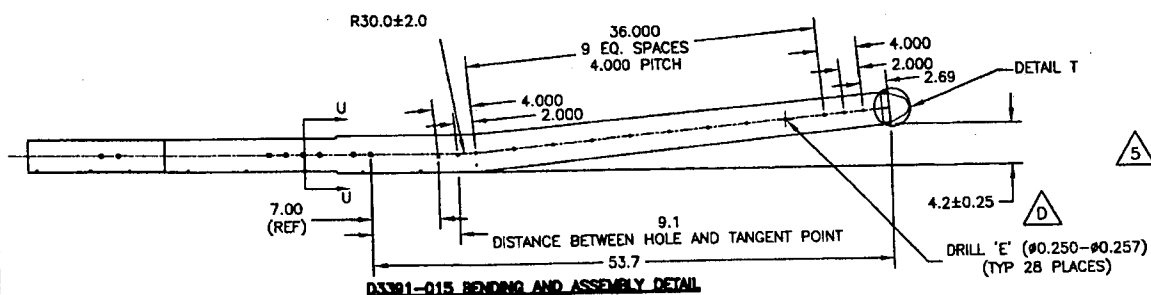
205-03

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DESIGN	PH	DRAWN BY	PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, OH	REV. E
CHECKED	PH	APPROVED	PH	DRAWING NO. D3391	SHEET 4 OF 5
DATE	06.04.25	TITLE	412 FLOAT SKIDTUBE	SCALE	1:12

NO. 30423
WORK ORDER
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
RETURN TO
ENGINEERING
SHOP COPY
30423

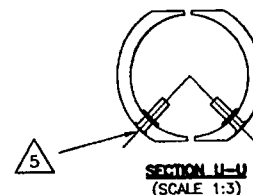


C'SINK AND INSTALL AESS10KBXXX AND/OR
NAS1330C3KBXXX IN HOLES MARKED CS1-CS6 AS
FOLLOWS

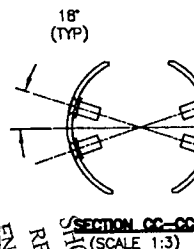
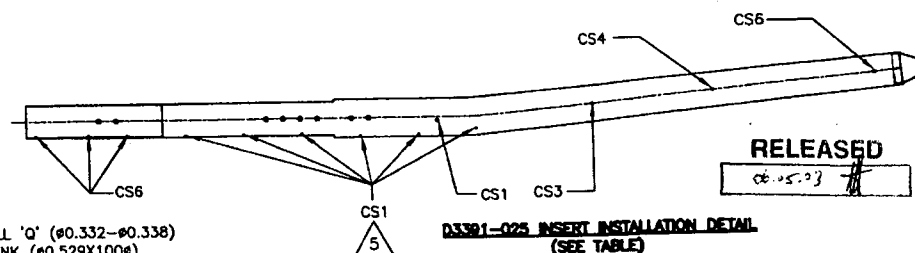
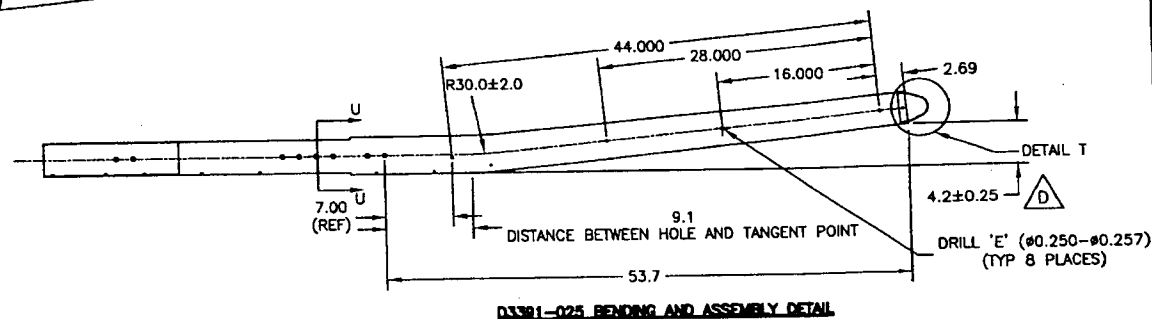
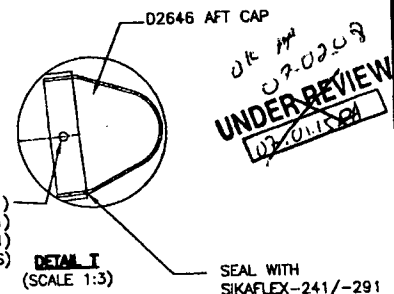
HC ES MARKED	QTY D3391-015	QTY D3391-025	C'SINK	P/N
CS1	18	14	Ø0.425	AESS10KB396
CS2	2		Ø0.391	AESS10KB396
CS3	2	2	Ø0.391	NAS1330C3KE316
CS4	2	2	Ø0.391	NAS1330C3KE266
CS5	2		Ø0.391	NAS1330C3KE216
CS6	12	8	Ø0.391	NAS1330C3KE166

D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X		D3391-015	AFT TUBE ASSEMBLY
	X	D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
18	14	AESS10KB396	INSERT
4	2	NAS1330C3KB316	INSERT
4	2	NAS1330C3KB266	INSERT
4		NAS1330C3KB216	INSERT
12	8	NAS1330C3KB166	INSERT
4		NAS1330C4KB151	INSERT
2	2	AN3C4A	BOLT
2	2	NAS1515H3L	WASHER
2	2	AN960C10L	WASHER



AN3C4A BOLT (1)
NAS1515H3L WASHER (1)
AN960C10L WASHER (1)
(2 PLACES)



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DART AEROSPACE USA, INC.

DESIGN	PH	DRAWN BY	PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED		APPROVED		DRAWING NO. D3391
DATE	06.04.25	TITLE	412 FLOAT SKIDTUBE	REV. E SHEET 5 OF 5 SCALE 1:12

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NO. 30933

07-0209
UNDER REVIEW
03-01-08

RELEASED
06-05-03

DART AEROSPACE LTD		Work Order: 30933
Description: Float Skidtube (412)		Part Number: D3391-3
Inspection Dwg: D3391	Rev: E	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	14.006	✓			
3.500	+/-0.010	3.501	✓			
88.93	+/-0.030	88.93	✓			
44.995	+/-0.030	45.000	✓			
3.200	+/-0.010	3.208	✓			
1.526	+0.000/-0.030	1.520	✓			
0.200	+/-0.010	.202	✓			
7.500	+/-0.010	7.500	✓			
27.750	+/-0.010	27.750	✓			
31.750	+/-0.010	31.750	✓			
35.250	+/-0.010	32.250	✓			
0.400	+/-0.010					
Ø0.208	+0.005/-0.001					
3.300	+/-0.010	3.300	✓			
0.200	+/-0.010	.202	✓			
3.520	+/-0.010	3.515	✓			
0.687	+0.010/-0.000	.688	✓			
R0.062	+/-0.010	R.062	✓			
Ø0.484	+0.005/-0.001	.487	✓			

Measured by: JF/BG/JL	Audited by: ml	Prototype Approval: N/A
Date: 07/23/09	Date: 07/03/13	Date: N/A

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	